

Water Supply in YOKOHAMA City

Manager for International Coordination **Takeo TANAKA**

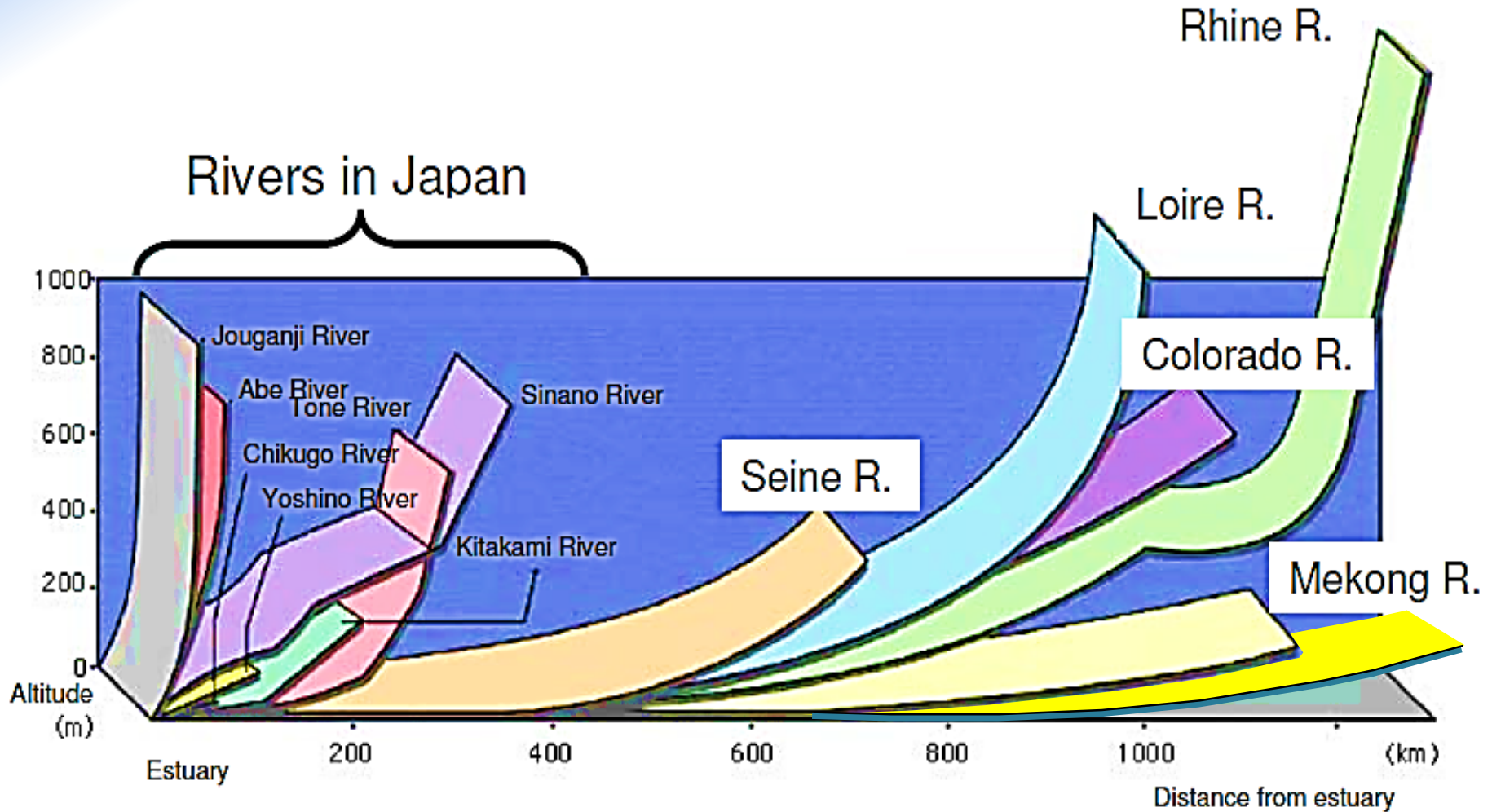


Yokohama Waterworks Bureau

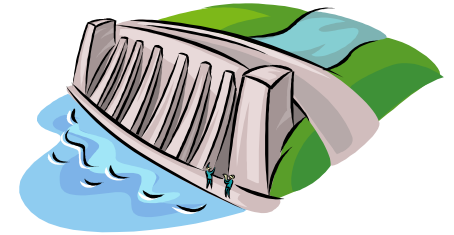
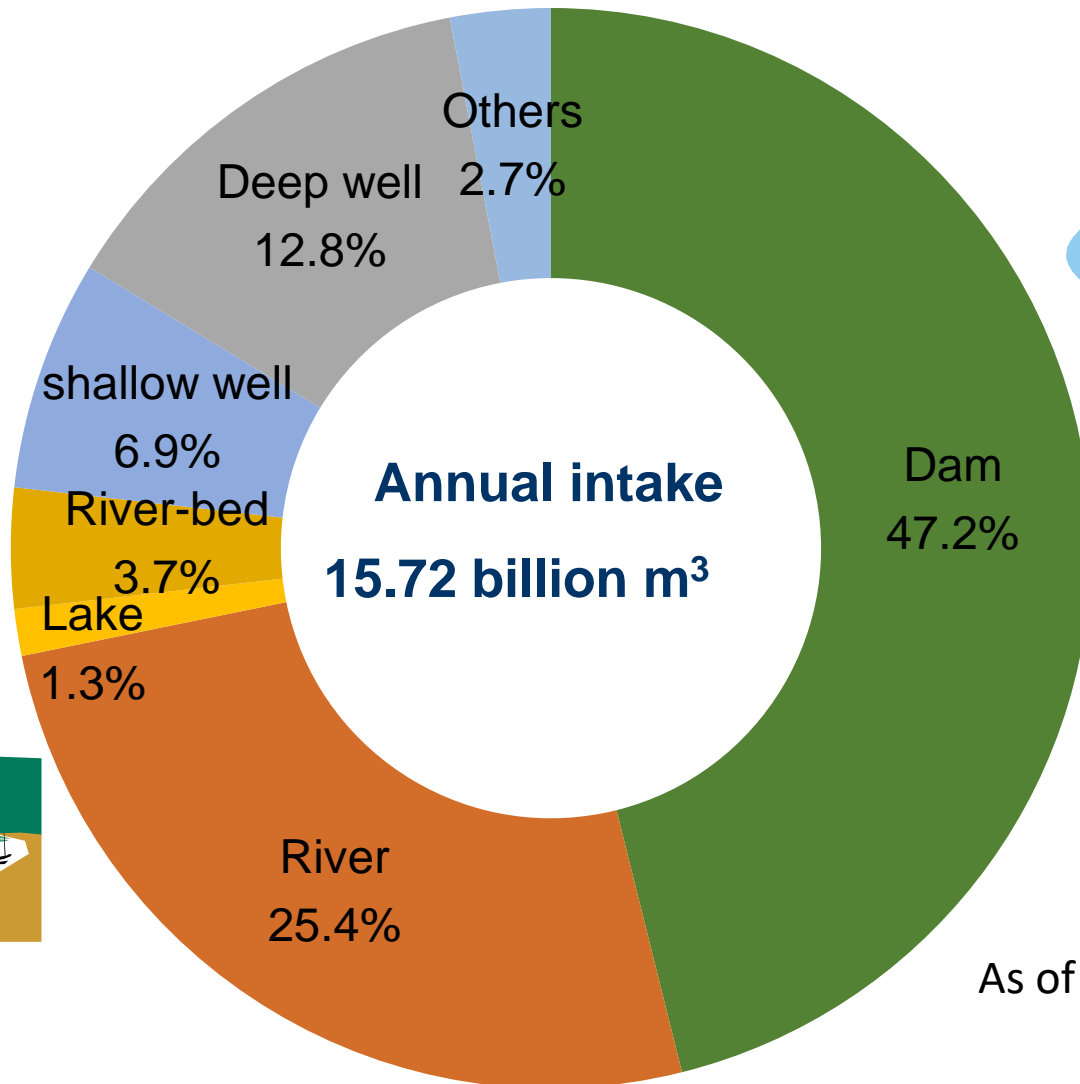
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- 2. Water Supply in Yokohama**
- 3. Challenges and Future Vision**

Inclination pitch of Rivers



Water Resource for Supply



As of 31.March, 2012

Water Supply in JAPAN

Administration

【National Government】

Ministries related to water in 11 ministries

Water supply: Ministry of Health, Labour and Welfare

Water Environment: Ministry of Environment

River Control, Water Resource: Ministry of Land, Infrastructure
and Transport

Industrial water: Ministry of Economy, Trade and Industry

Agricultural water: Ministry of Agriculture, Forestry and Fishery

Sewerage system: Ministry of Land, Infrastructure and Transport

【Prefecture】 47 prefectures

【Cities, Towns and Villages】

• 1,727 communities (As of March 31, 2010)

Local Government

Regulations

【National Government】

Ministries related to water in 11 ministries

Water supply: Ministry of Health, Labour and Welfare

Waterworks Act (enacted in 1957)

Ministerial Ordinance (technical standards etc.)
other decrees, regulations, orders

Local Public Enterprise Act :Ministry of Internal Affairs and
Communications

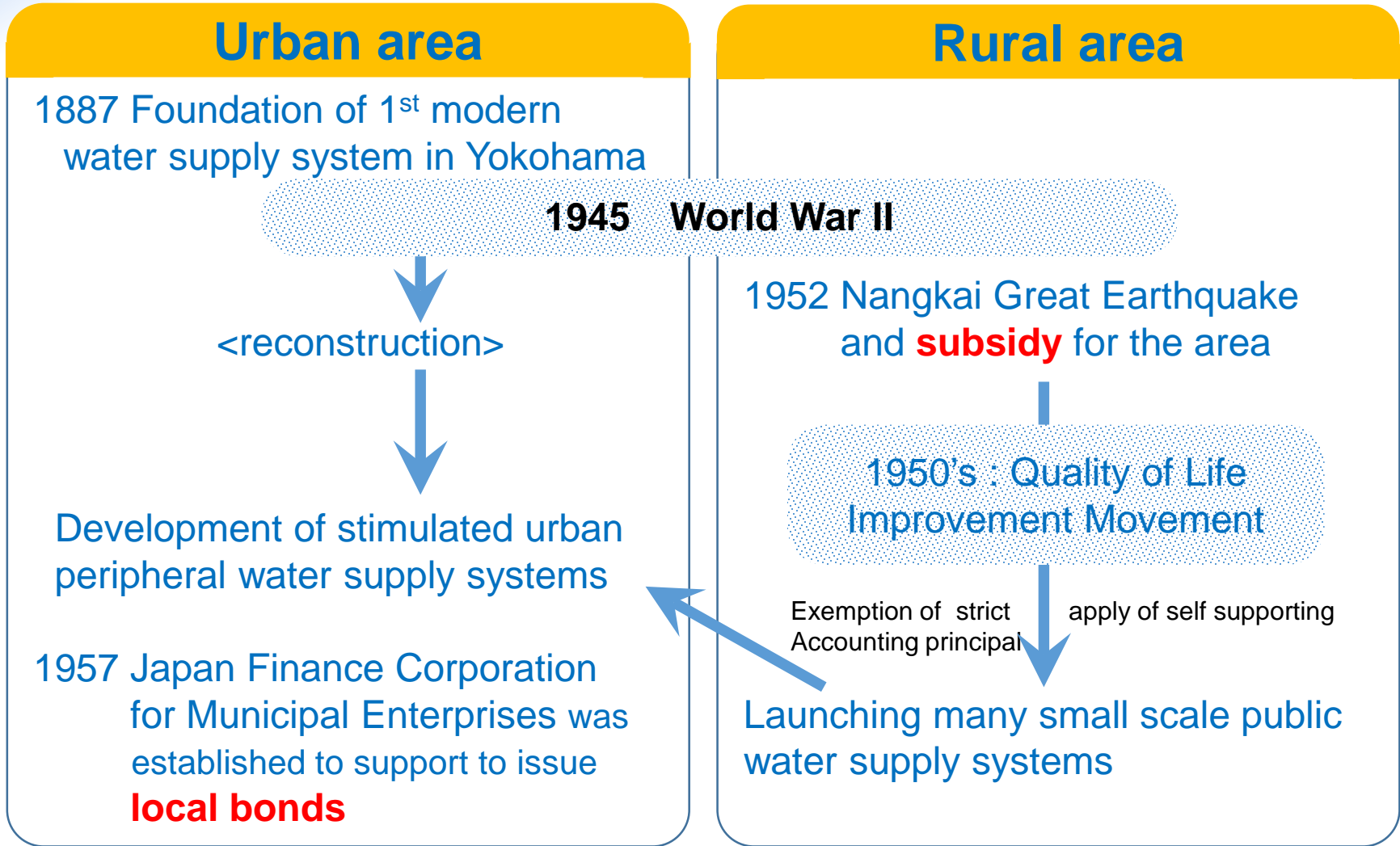
【Prefecture】 47 prefectures

【Cities, Towns and Villages】

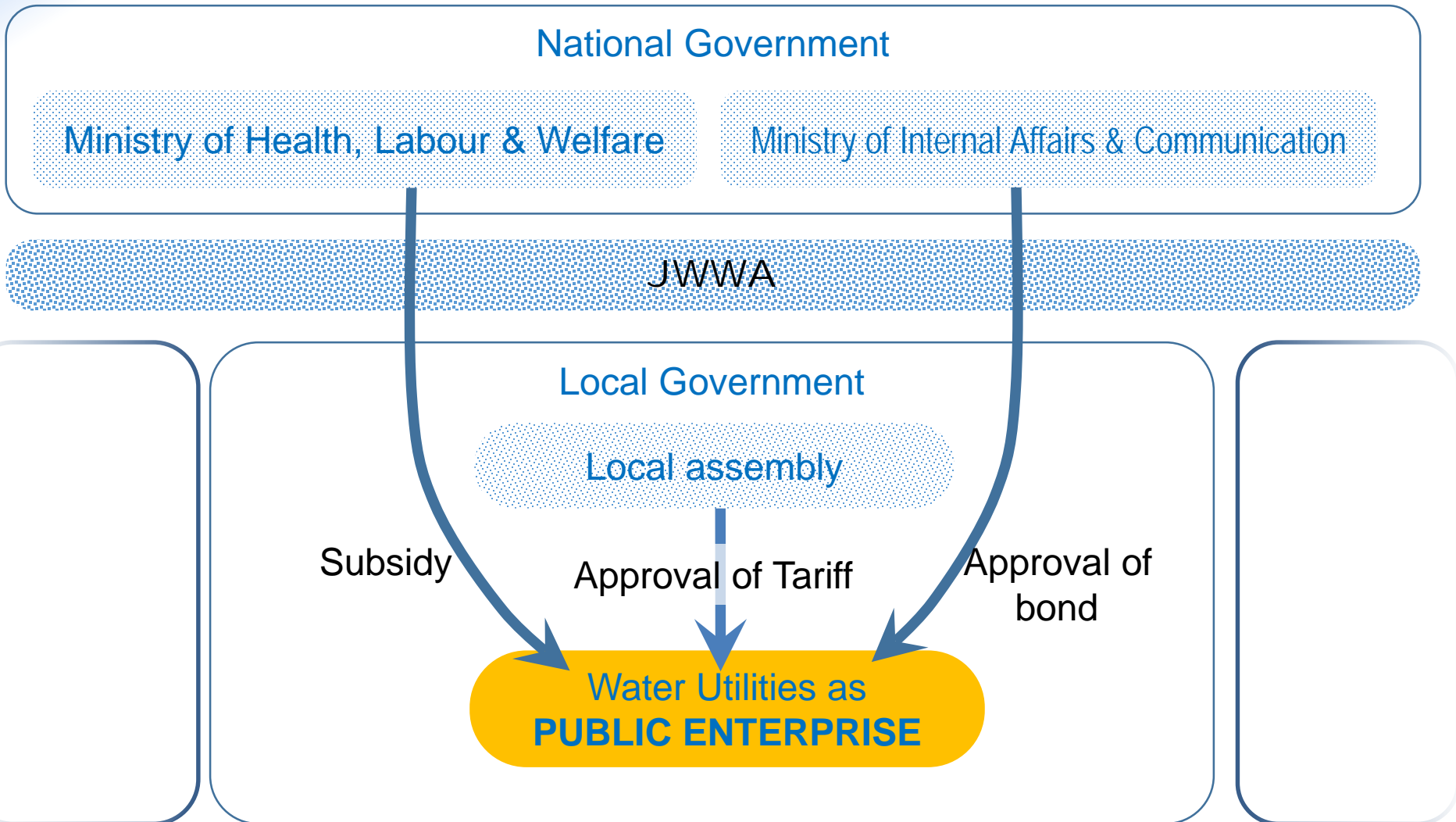
• 1,727 communities (As of March 31, 2010)

Local Government
Ordinances

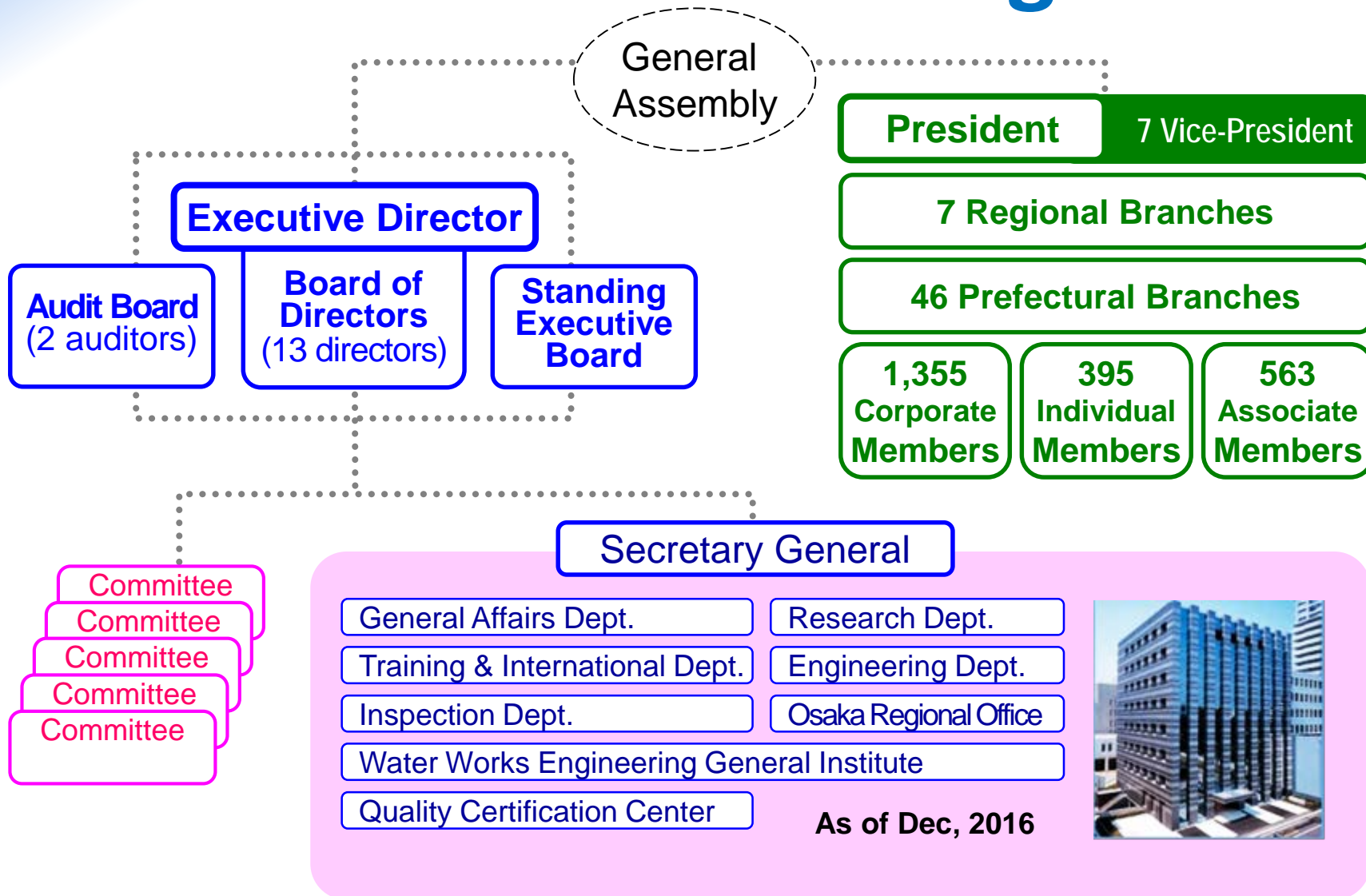
History of these 130 years



Water Supply in JAPAN System & stakeholders



JWWA-1 Organization



JWWA-2 Activities 【1】

Nation-wide collaboration on water supply issues

Annual conference and symposium, Approach to obtain government budget allocation, etc.

Research Activities on Water Supply Management/ technologies

Standardizations of water supply equipment and materials etc.



International Activities



Training



JWWA-2 Activities [2]

The Inspection Service



Publications

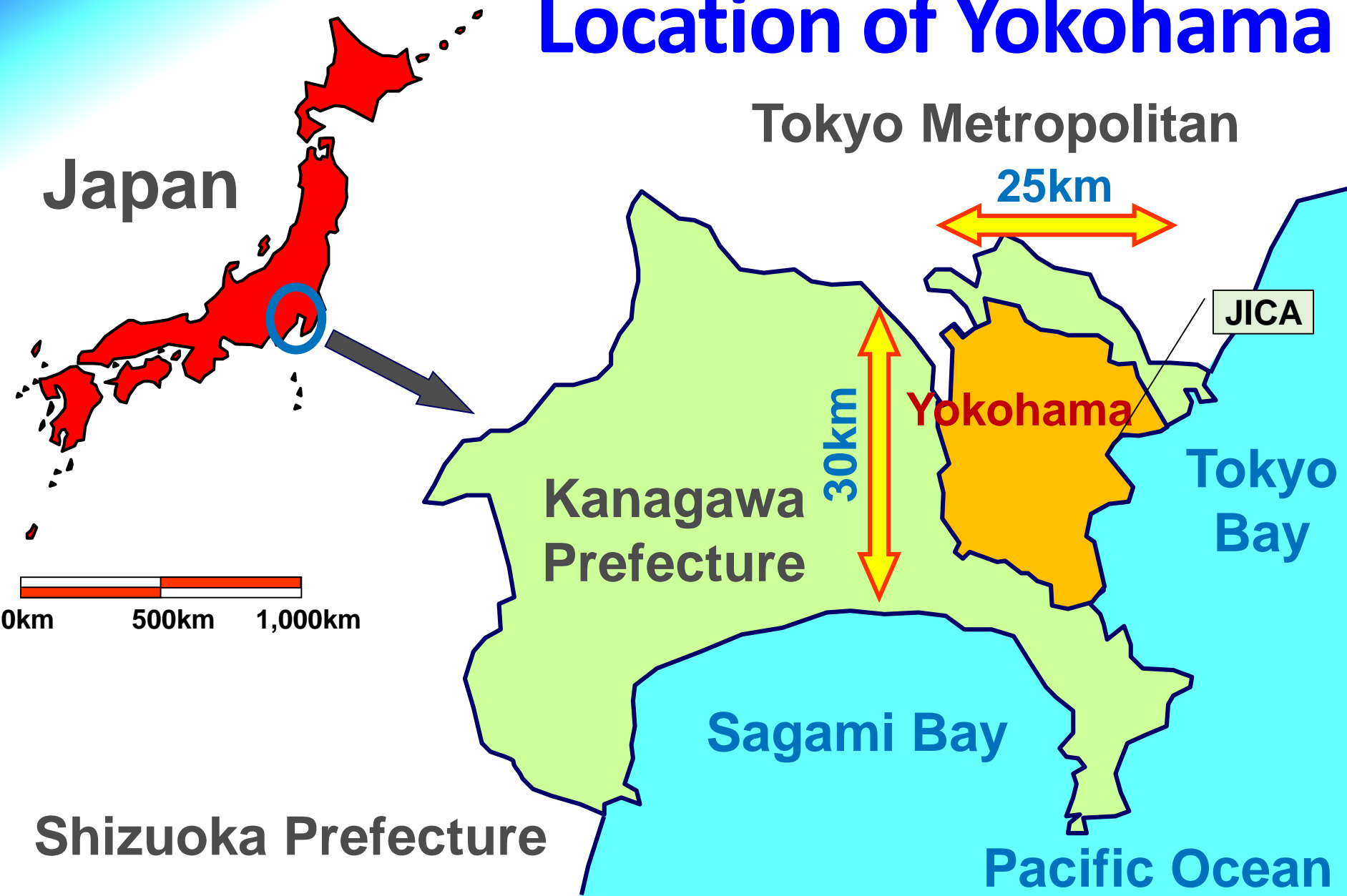


The Certification Service



JWWA—GLP053
水道GLP認定

Location of Yokohama

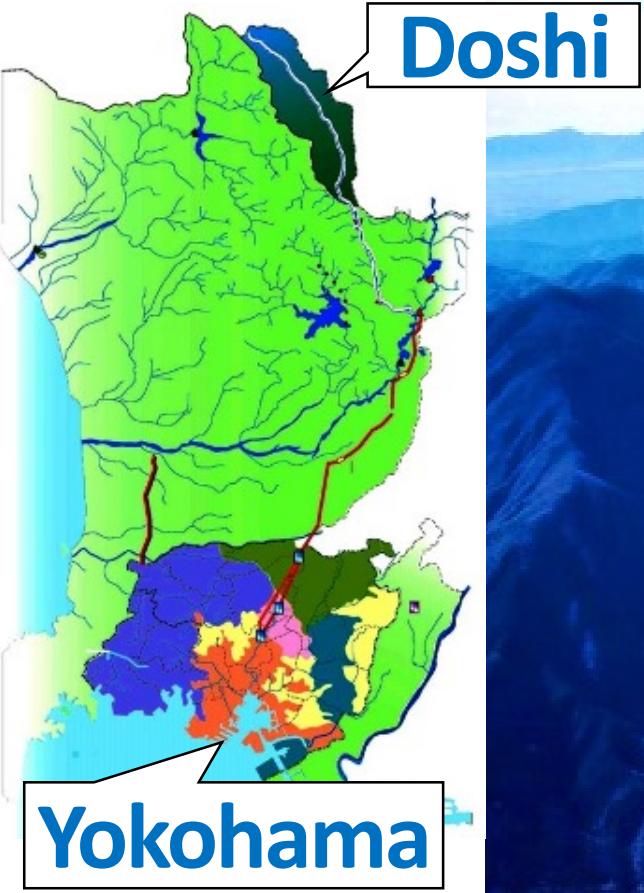


Water Supply in YOKOHAMA

Water Resource



A view from Doshi Village to Mt. Fuji



Predawn of Modern Water Works

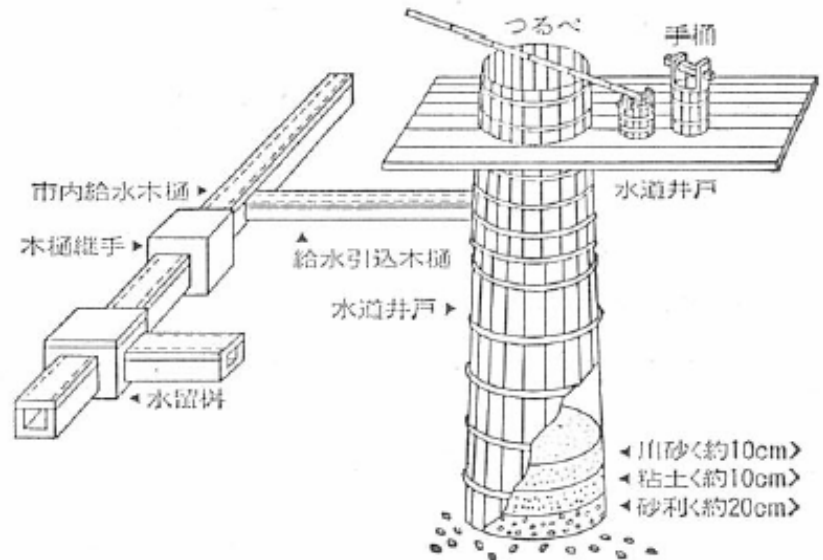


“THE FAR EAST” 1. August, 1870

Water Vendor,
(Supplying spring water
from suburbs)



Wooden channel



1887~ Modern Water Works

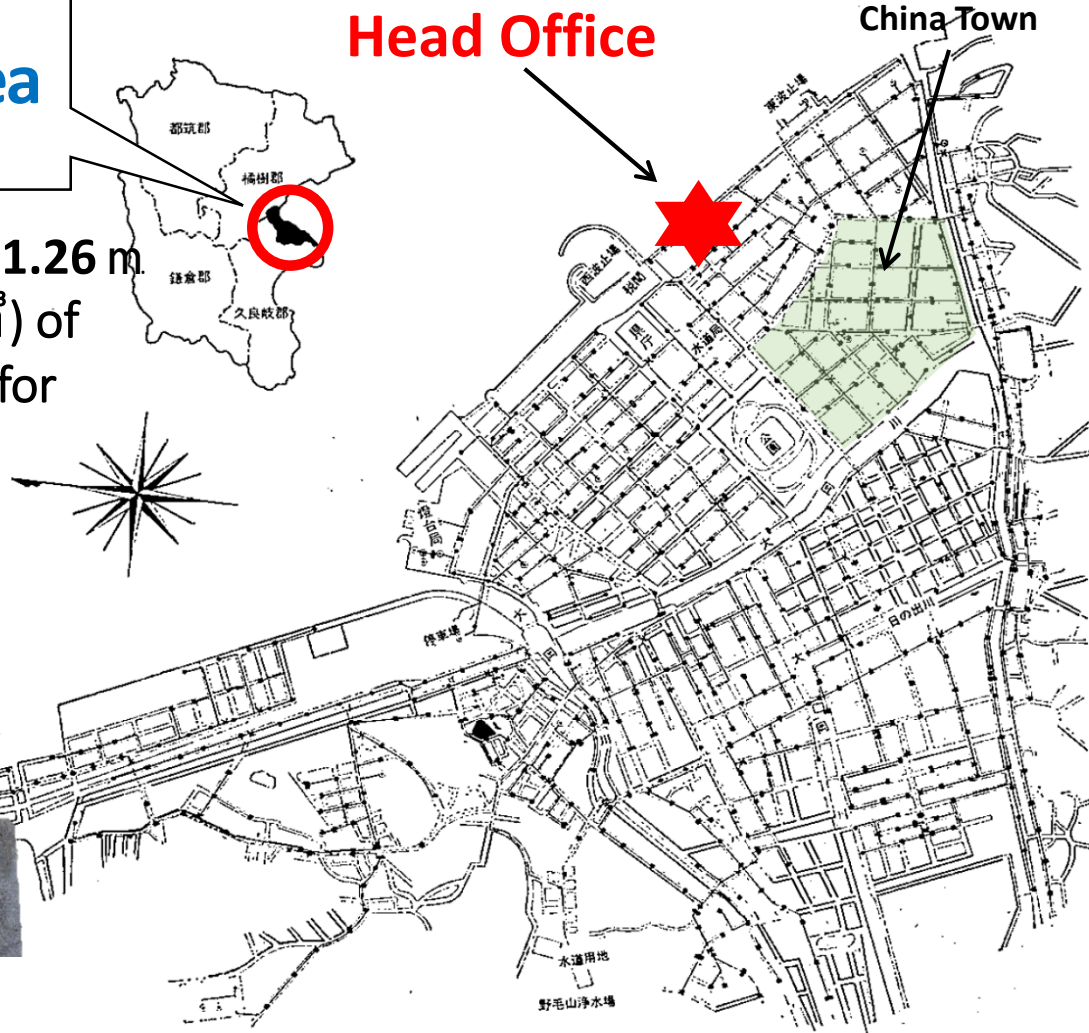
Water supply area in 1887

Yokohama got 1.26 m. gallon (5,720m³) of water per day for 70,000 users



Head Office

China Town



- Hydrant: 629
- Domestic tap: 1,068 households
- Common tap: 143 for 6,606 households

As of the end of 1887



H. S. Palmer

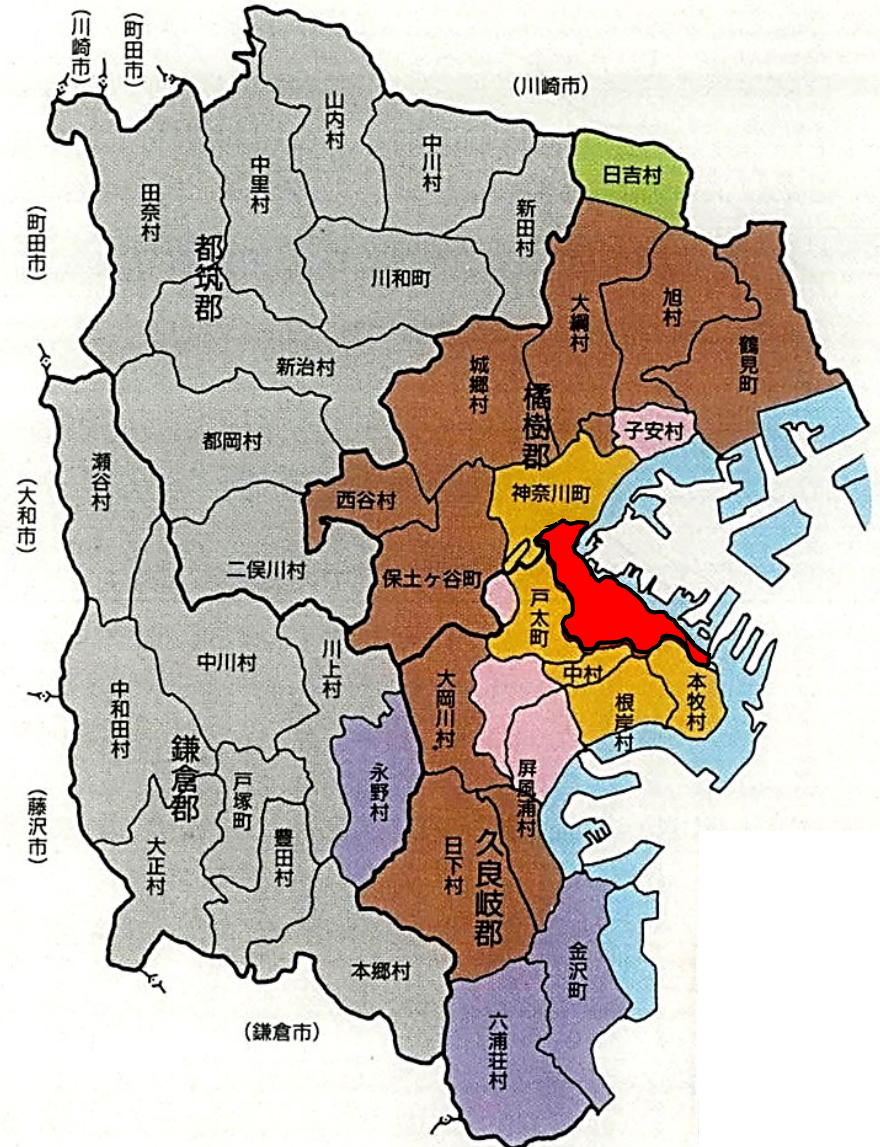


Common Tap at that time

1887~ Expansion of the City

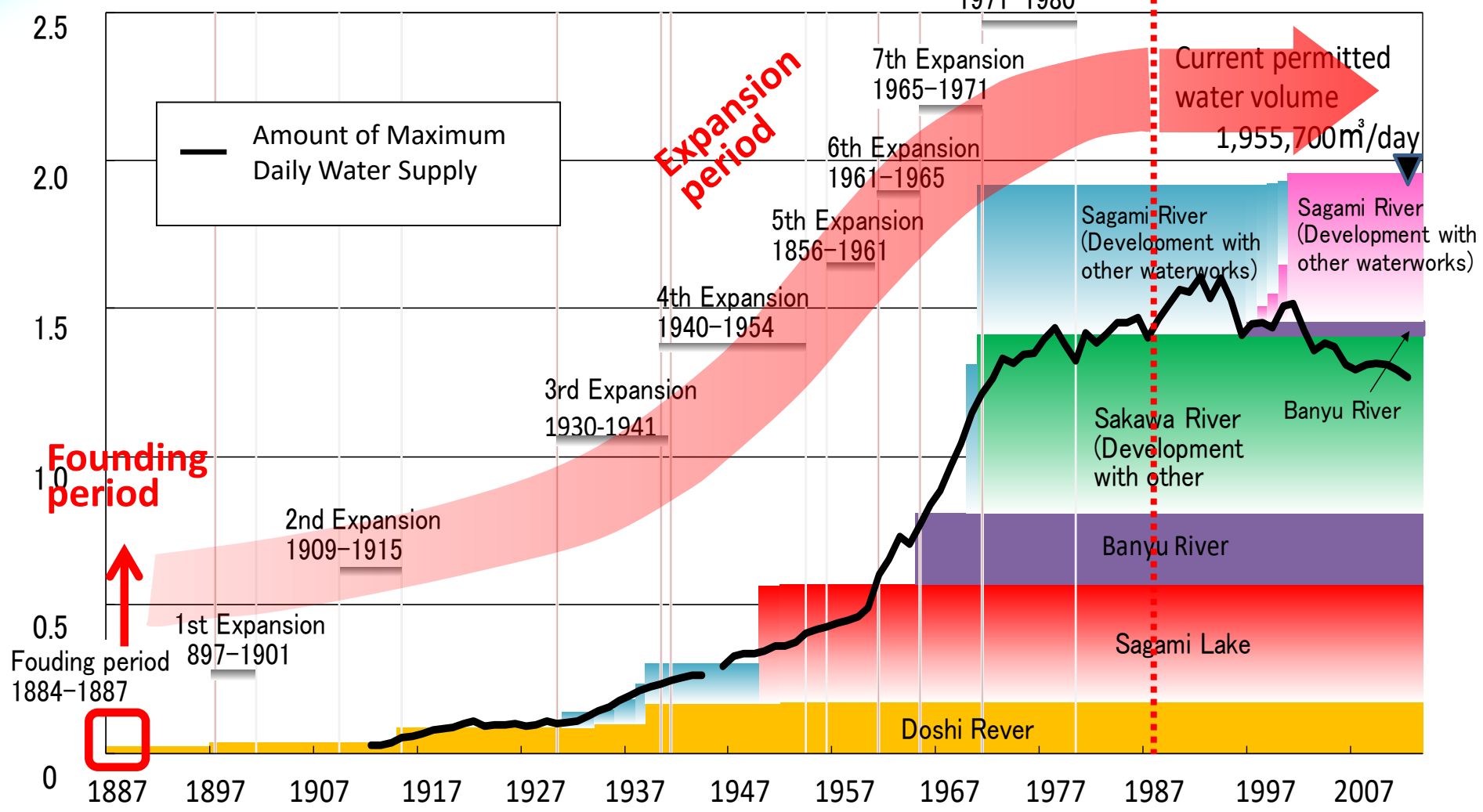
Yokohama became a city in 1889, and expanded into 75 times larger area municipality in 50 years

Area	Legend	
5.40 km ²		1889
24.80 km ²		04.1, 1901
36.71 km ²		04.1, 1911
133.88 km ²		04.1, 1927
168.02 km ²		10.1, 1936
173.18 km ²		04.1, 1937
400.97 km ²		04.1, 1939
		Reclaimed



beyond 8 times Expansion Project

Amount of water resource
(mil m³/ day)



Water Supply in YOKOHAMA






Tokyo Metropolis

Yamanashi Prefecture

Kanagawa Prefecture

YOKOHAMA

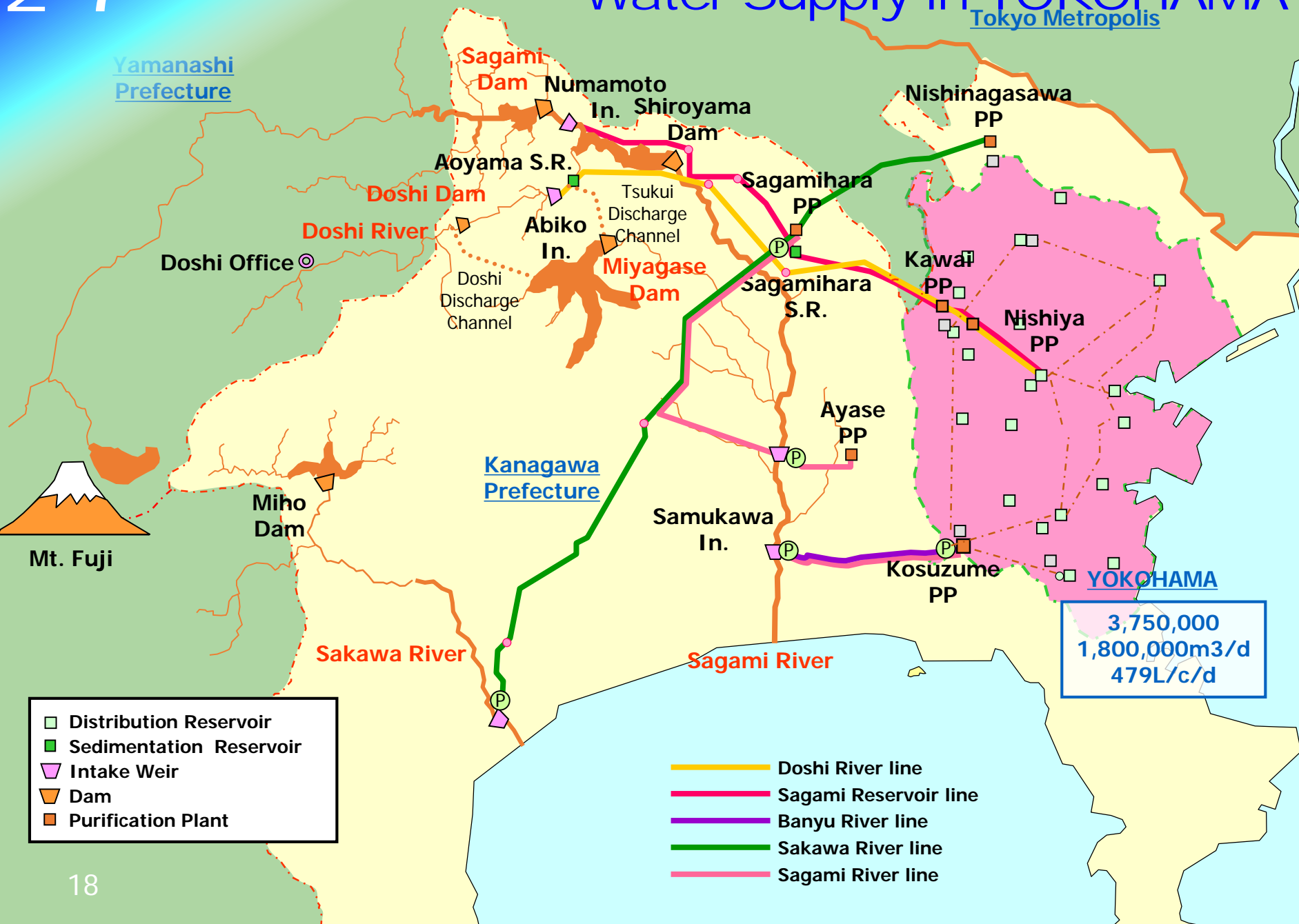
3,750,000
1,800,000m ³ /d
479L/c/d

-  Distribution Reservoir
-  Sedimentation Reservoir
-  Intake Weir
-  Dam
-  Purification Plant

-  Doshi River line
-  Sagami Reservoir line
-  Banyu River line
-  Sakawa River line
-  Sagami River line



Mt. Fuji



Basic Information of YWWB

• Start of service	17/Oct/1887 (130Ys ago)
• Served population	3,726,317 (FY.2015)
• Connections	1,824,383 (FY.2015)
• Service rate	100.00 % (Since 1988)
• Pipelines length	9,250.6 km (FY.2015)
• Fee collection rate	99.9 % (FY.2015)
• Leakage (NRW) rate	5.6(8.2) % (FY.2016)
• Daily supply (average)	1,127,804 m ³ (FY.2015)

Distribution System

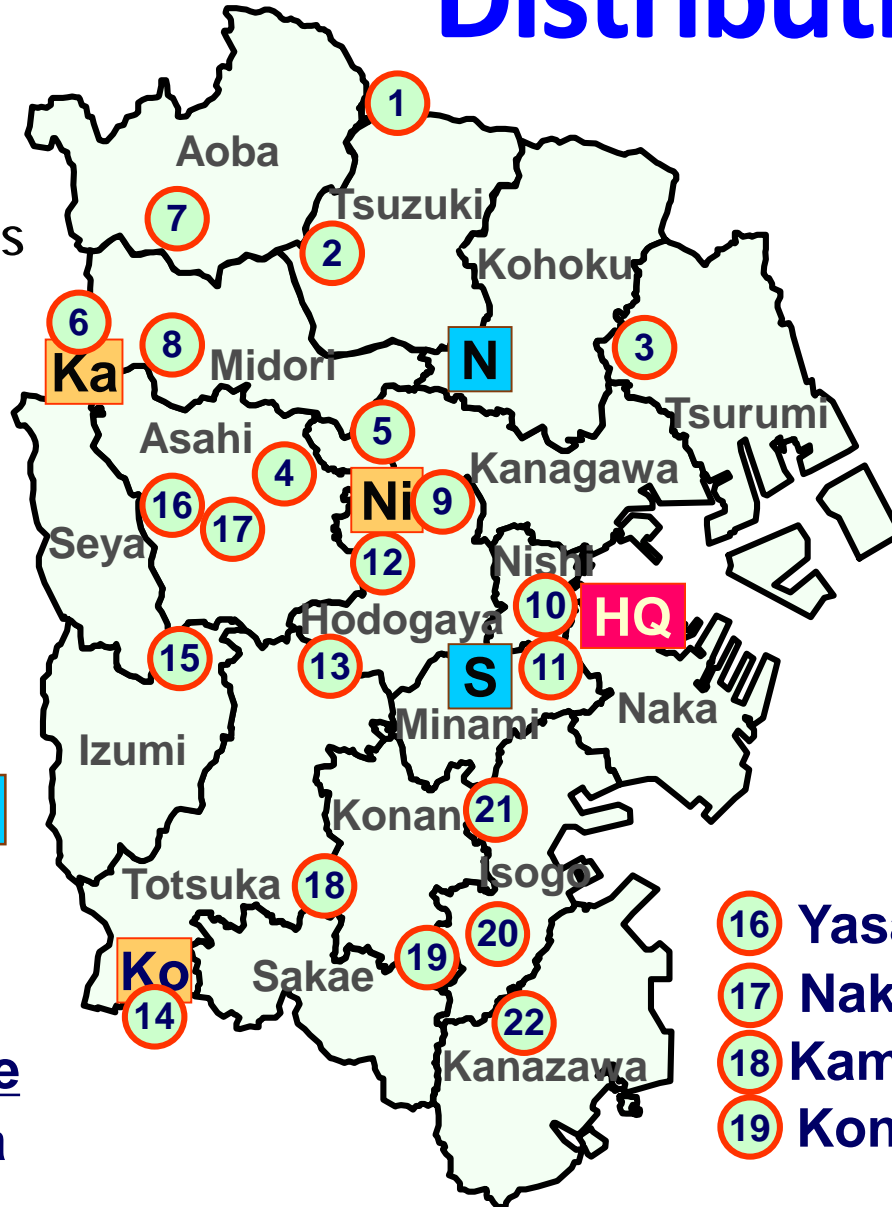
18 Ward

Treatment Plants

- Kawai**
- Nishiya**
- Kosuzume**

Distribution Management Office

North **South**

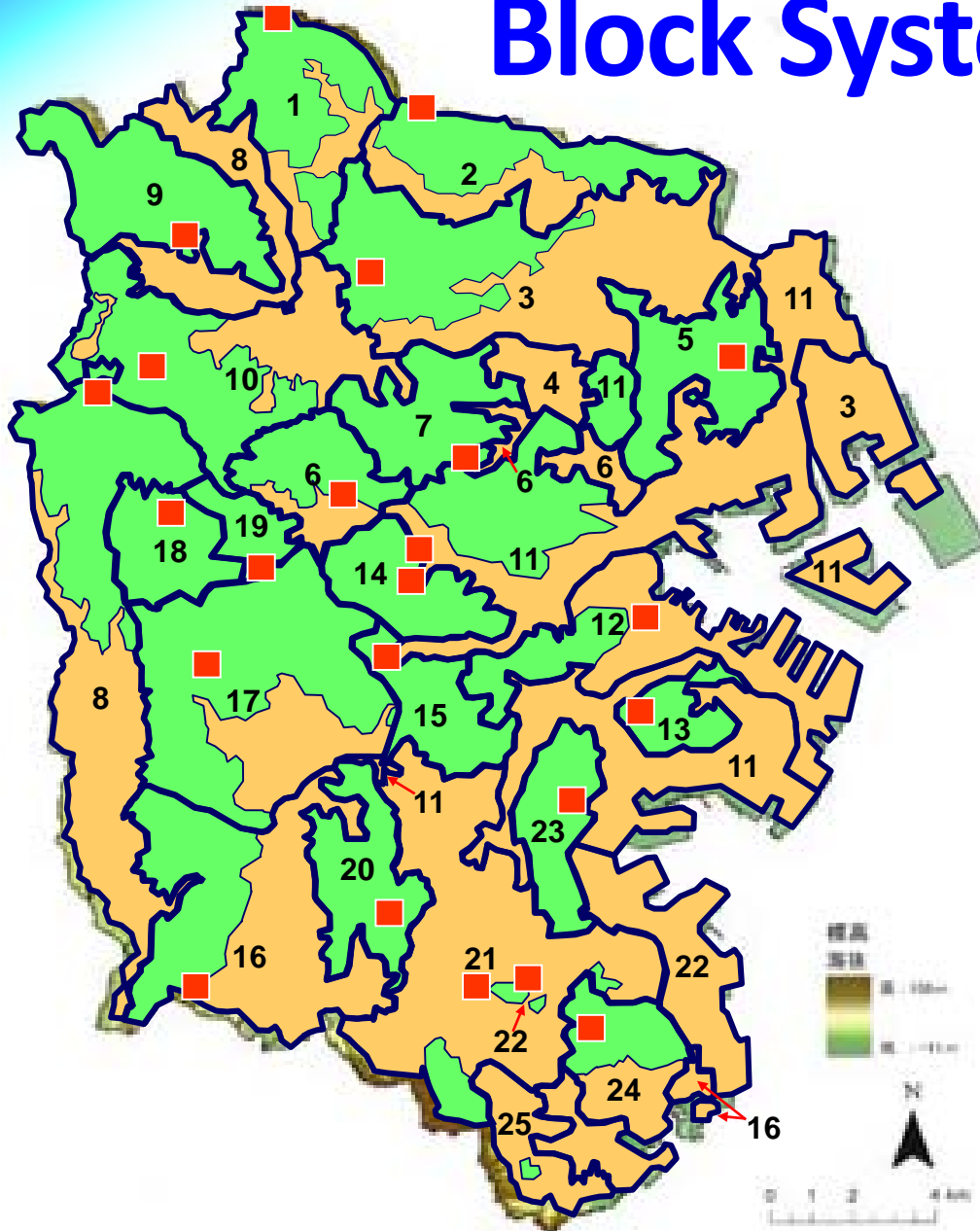


Reservoirs

- 1 Ushikubo
- 2 Kohoku
- 3 Tsurumi
- 4 Tsurugamine
- 5 Sugeta
- 6 Kawai
- 7 Onda
- 8 Miho
- 9 Nishiya
- 10 Nogeyama
- 11 Heiraku
- 16 Yasashi
- 17 Nakao
- 18 Kaminagaya
- 19 Konandai
- 20 Mine
- 21 Isogo
- 22 Kanazawa

- 12 Bukko
- 13 Imai
- 14 Kosuzume
- 15 Takatsuka

Block System Distribution




Large Block (25)

 **Distribution Reservoir**

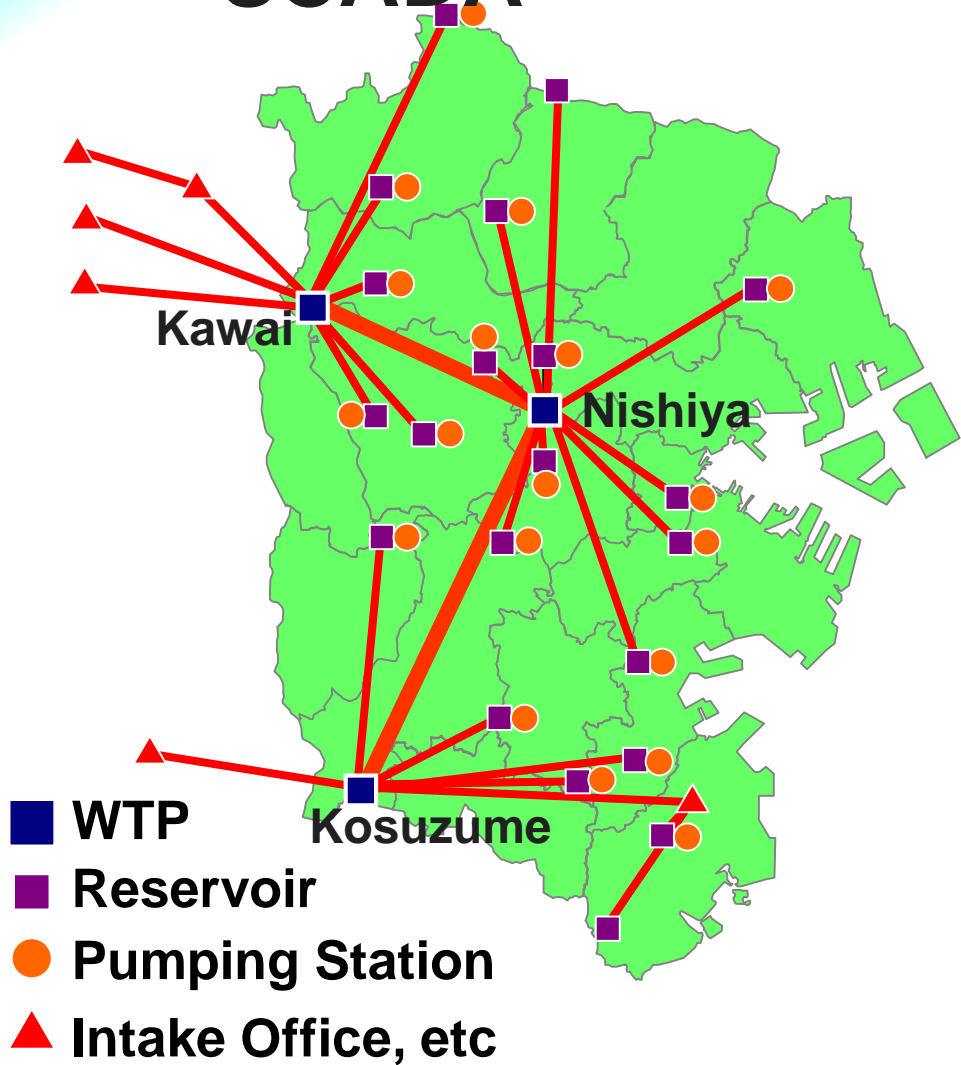
Middle Block (37)

 **Pumping (22)**

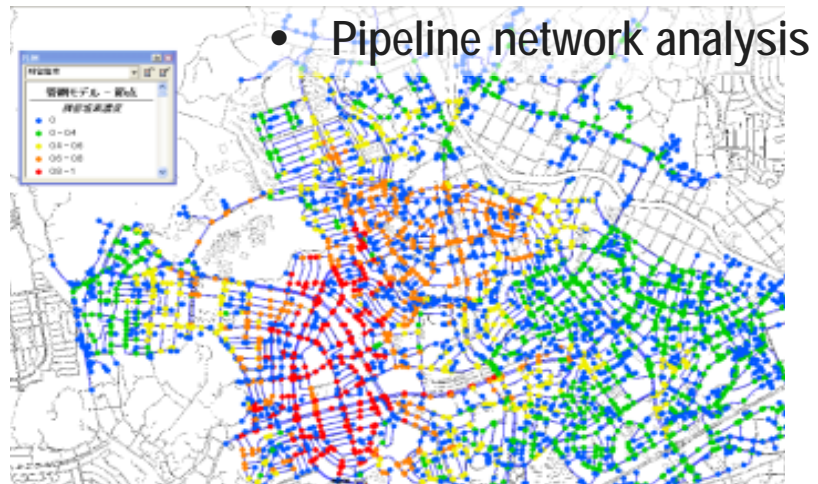
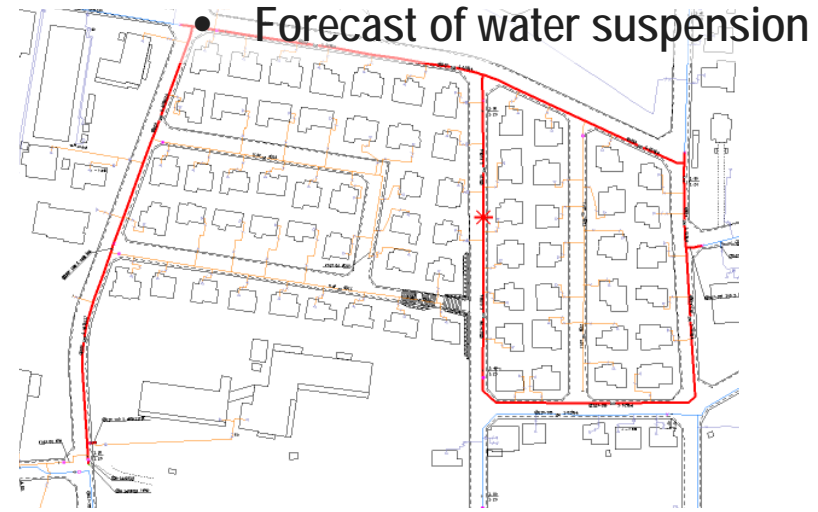
 **Gravity flow (15)**

Water Supply in YOKOHAMA Facility Control Systems

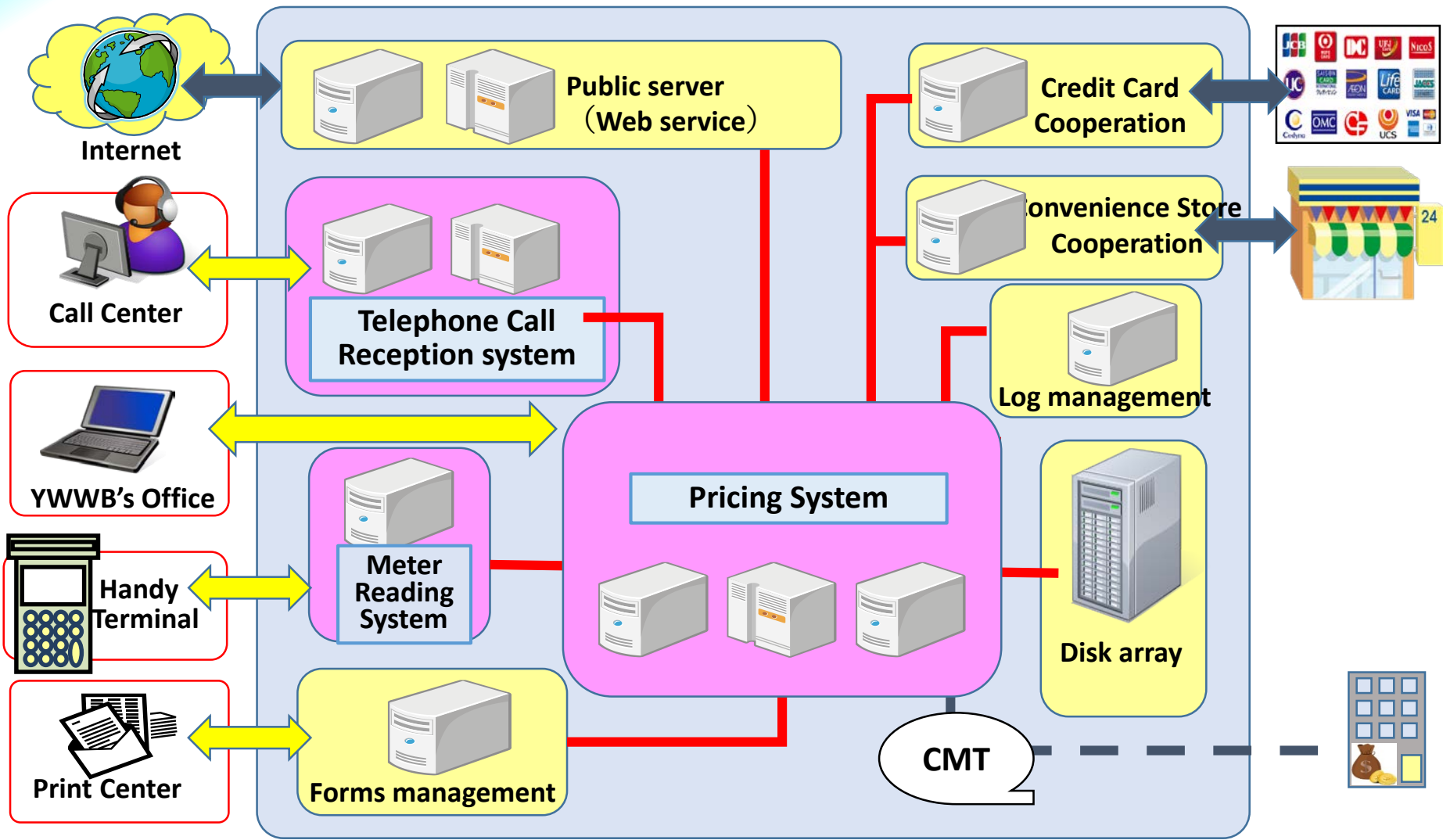
■ SCADA



■ Mapping System



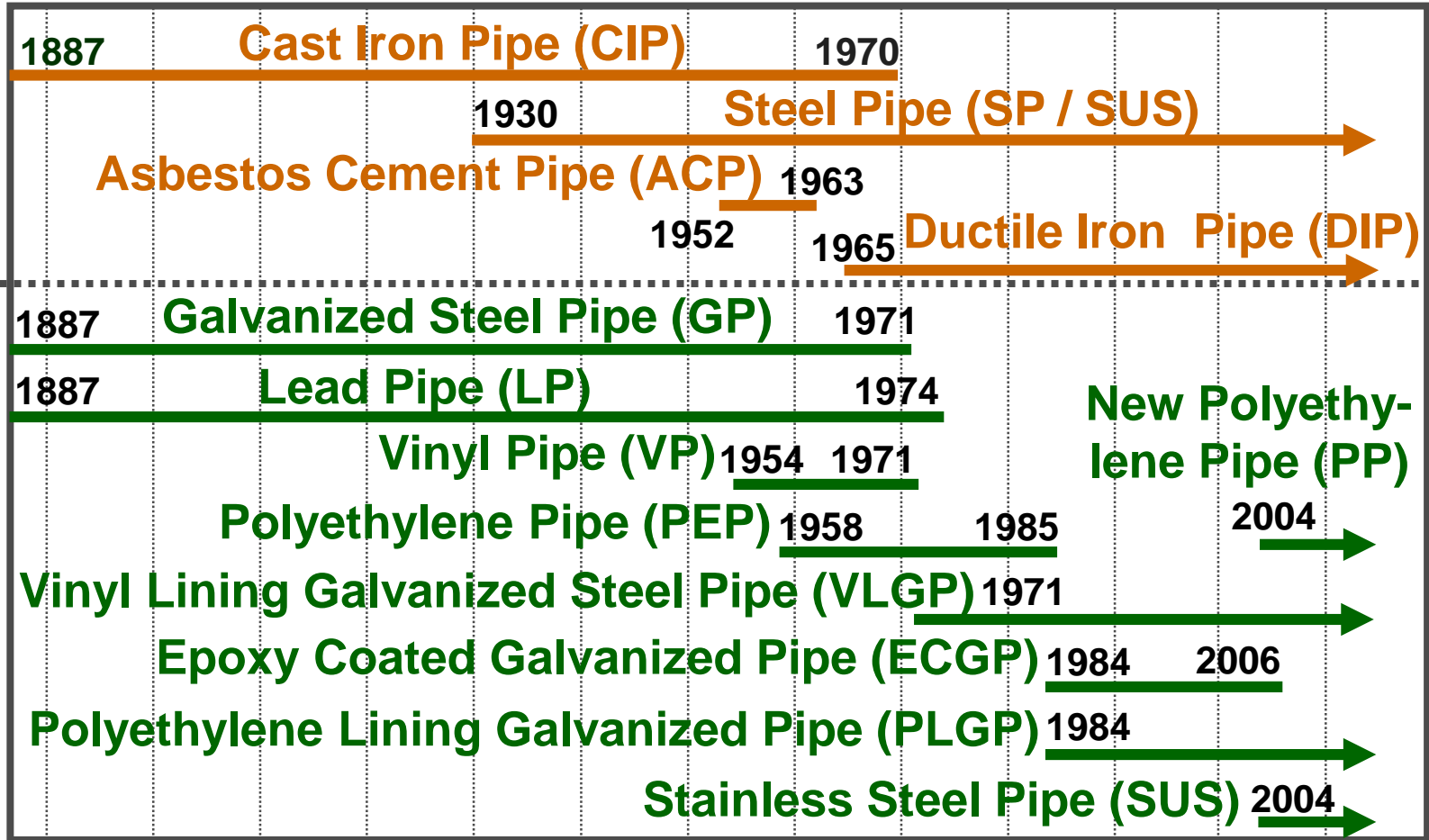
Customer Administration System



History of Pipe Installation

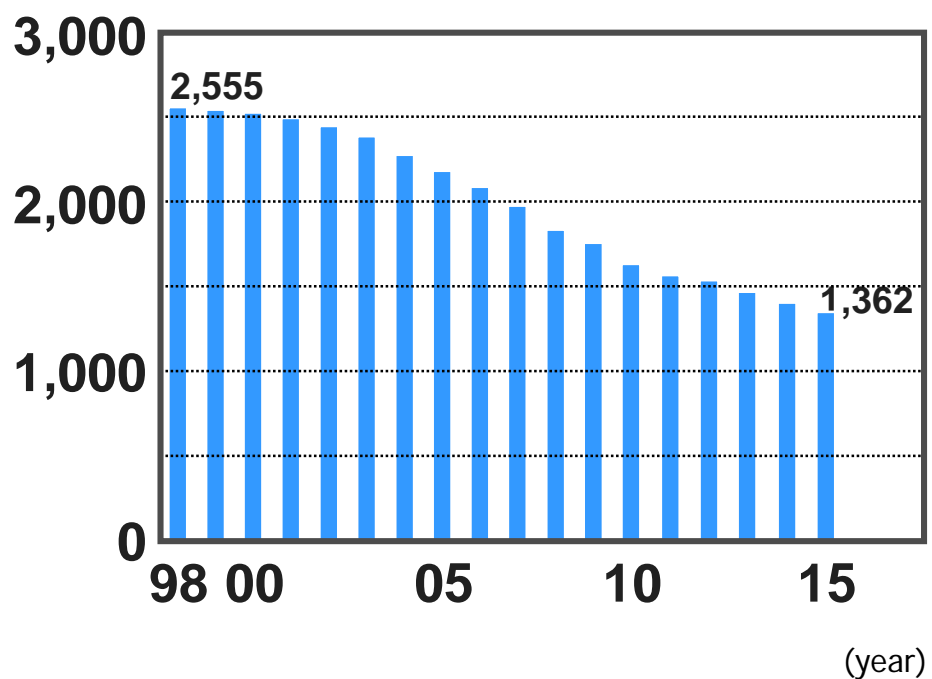
DN75
&over

DN50
&less



1887 1900 20 60 80 2000 20 (Year)

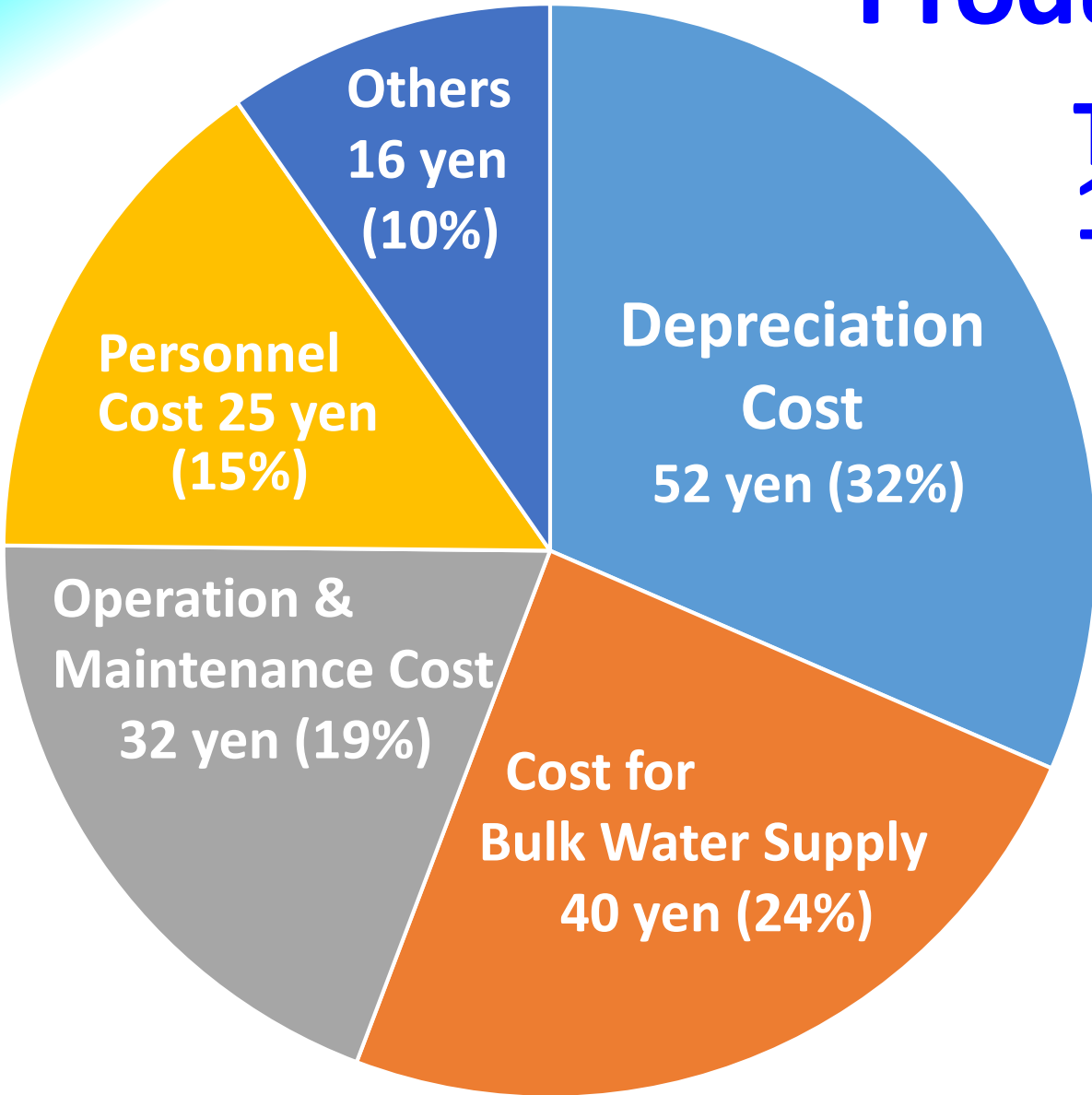
Organization Structure



- Improve Efficiency of Business
- Outsourcing
- Reemployment of Retiree

1,332 staffs as of 31.Mar, 2017

Production Cost



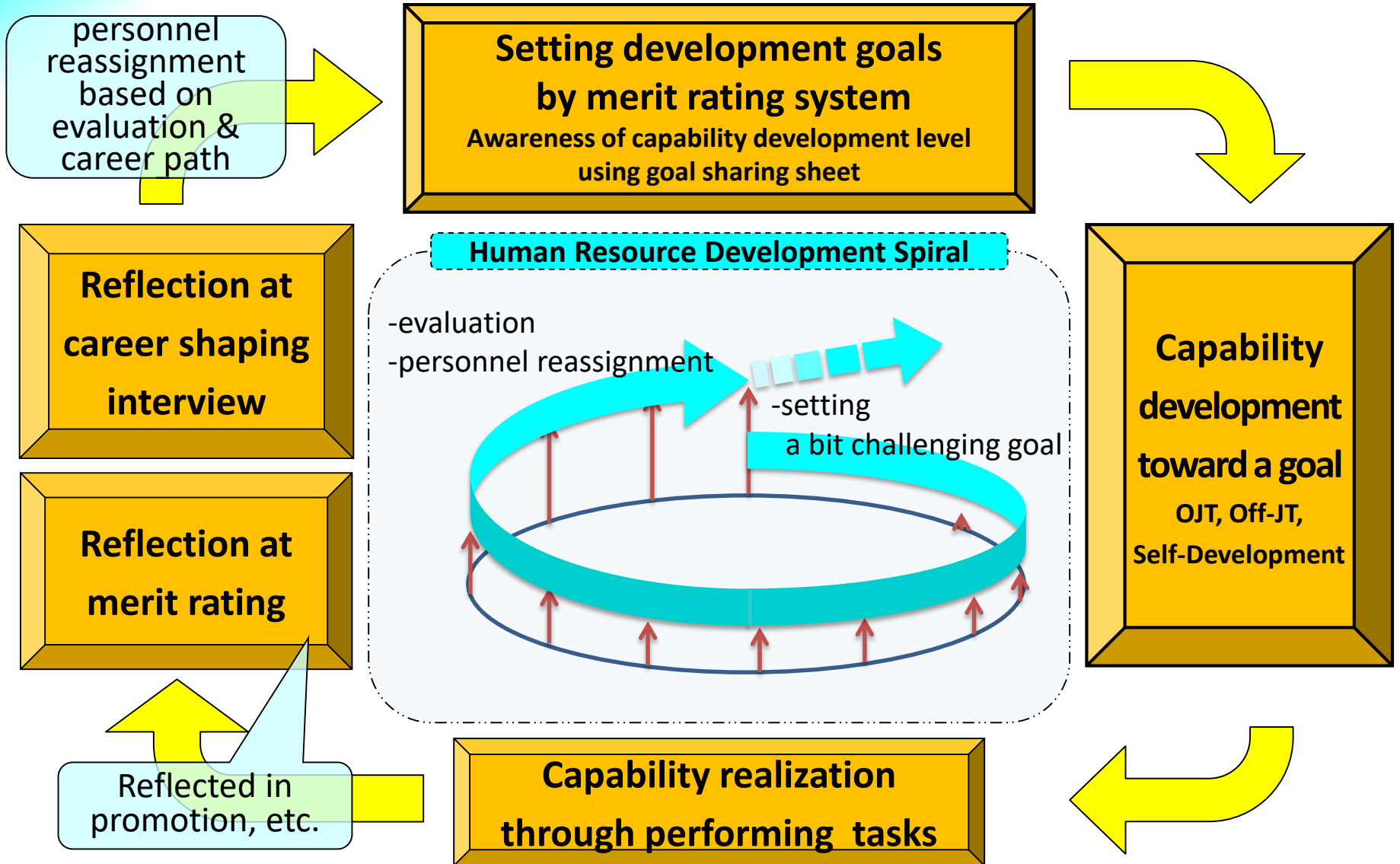
Total Cost
165 yen/m³

Other cities (yen)

Tokyo:	197
Nagoya:	157
Kyoto:	146
Osaka:	137
Kobe:	184

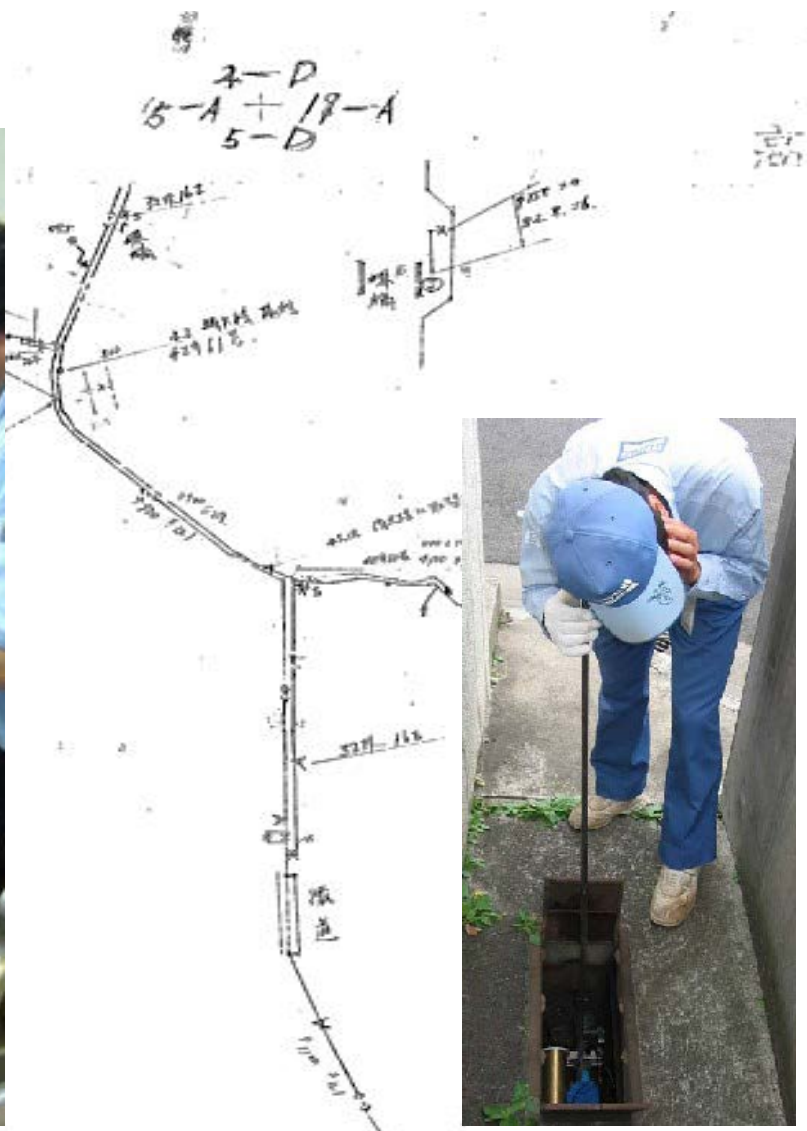
As of
31.March,
2017

Human Resource Management

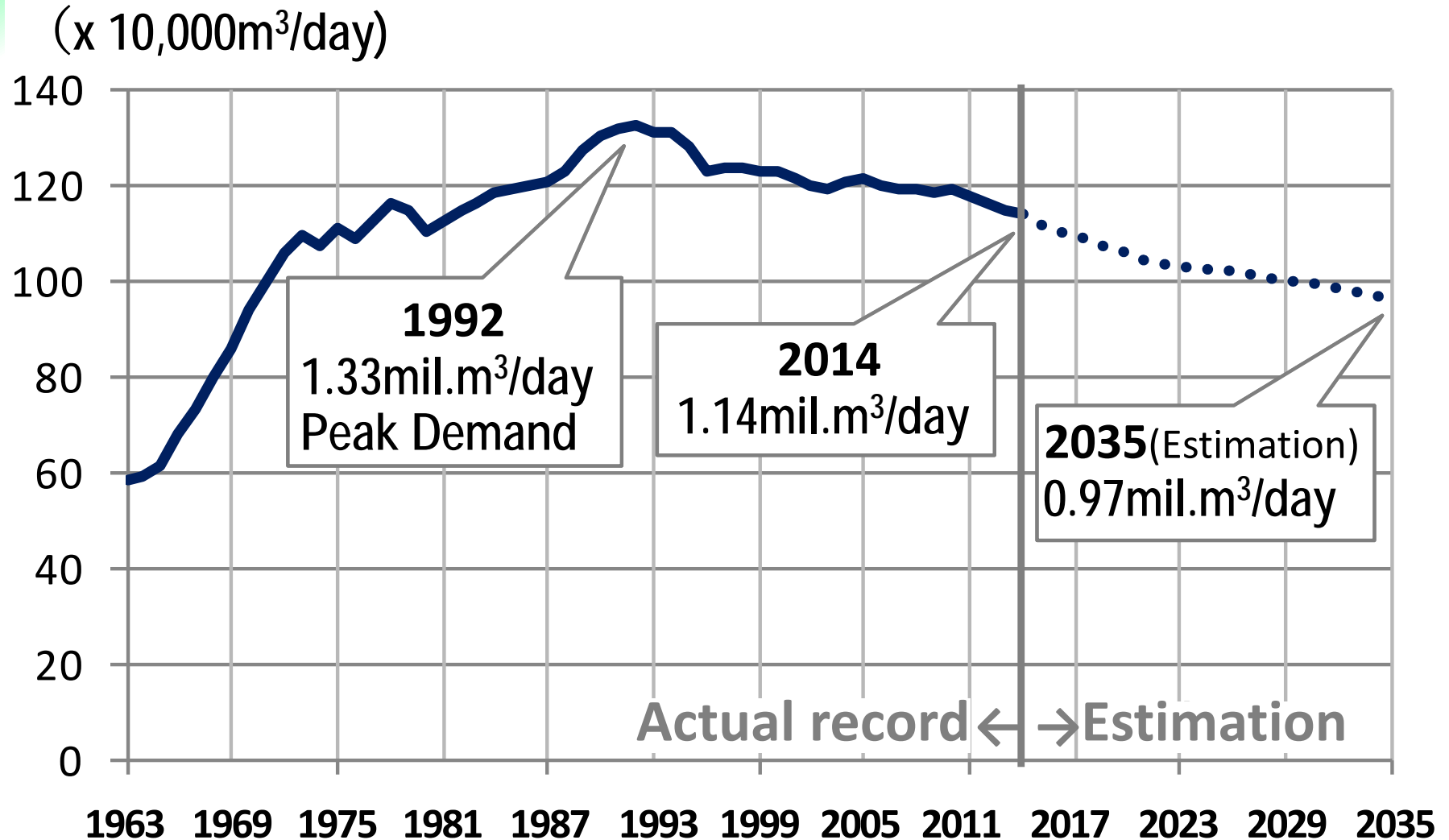


2-17

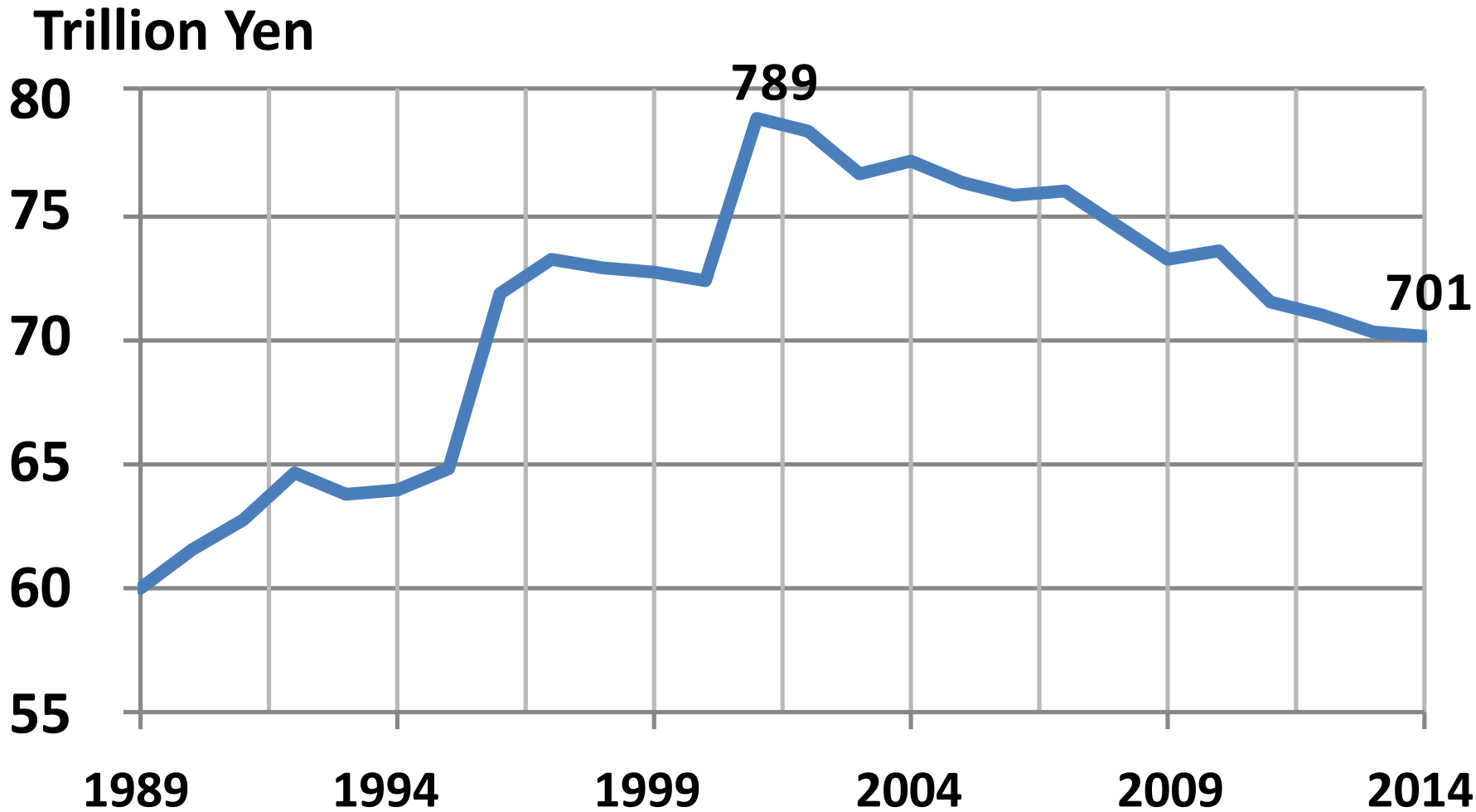
Water Supply in YOKOHAMA Sustained Endless Effort



Future Demand Forecast



Revenue of these years

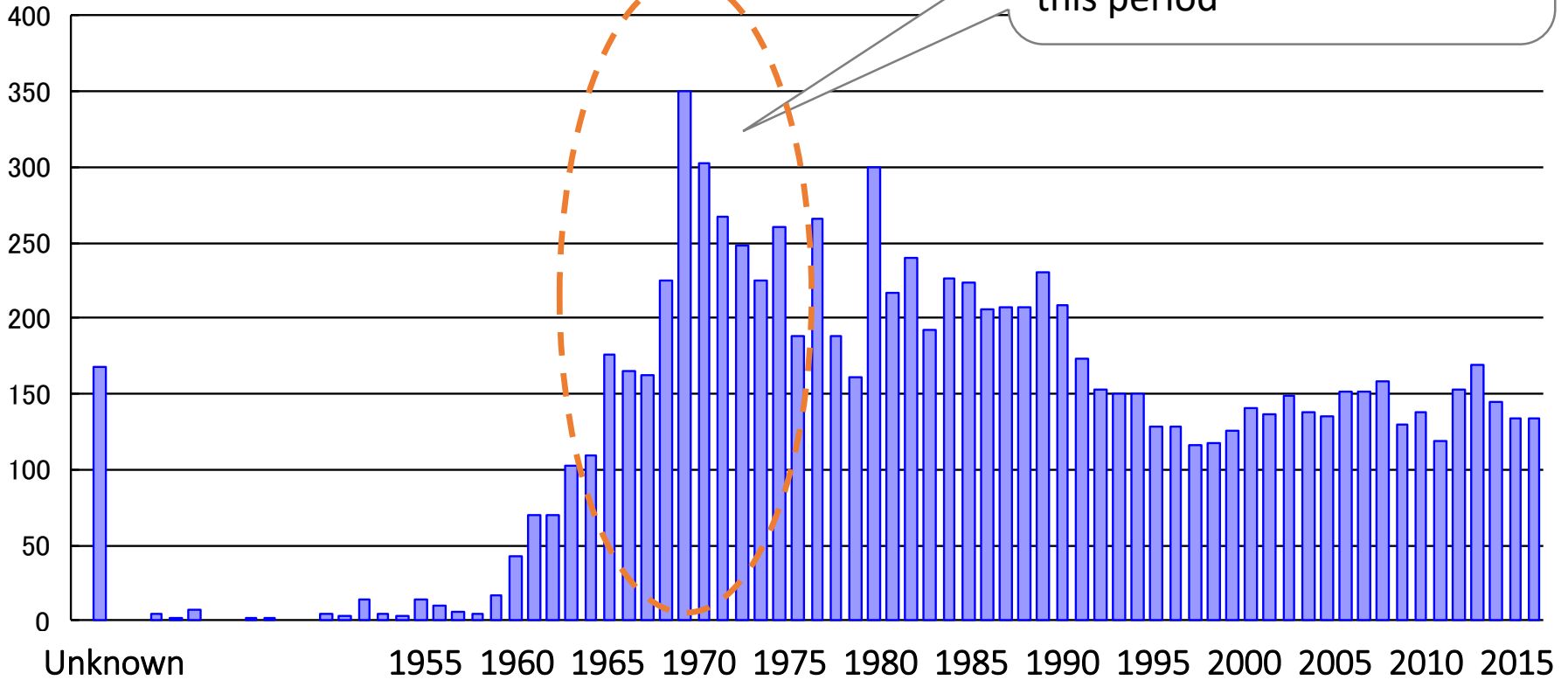


Installation/Renewal of pipes

Installed length (km)

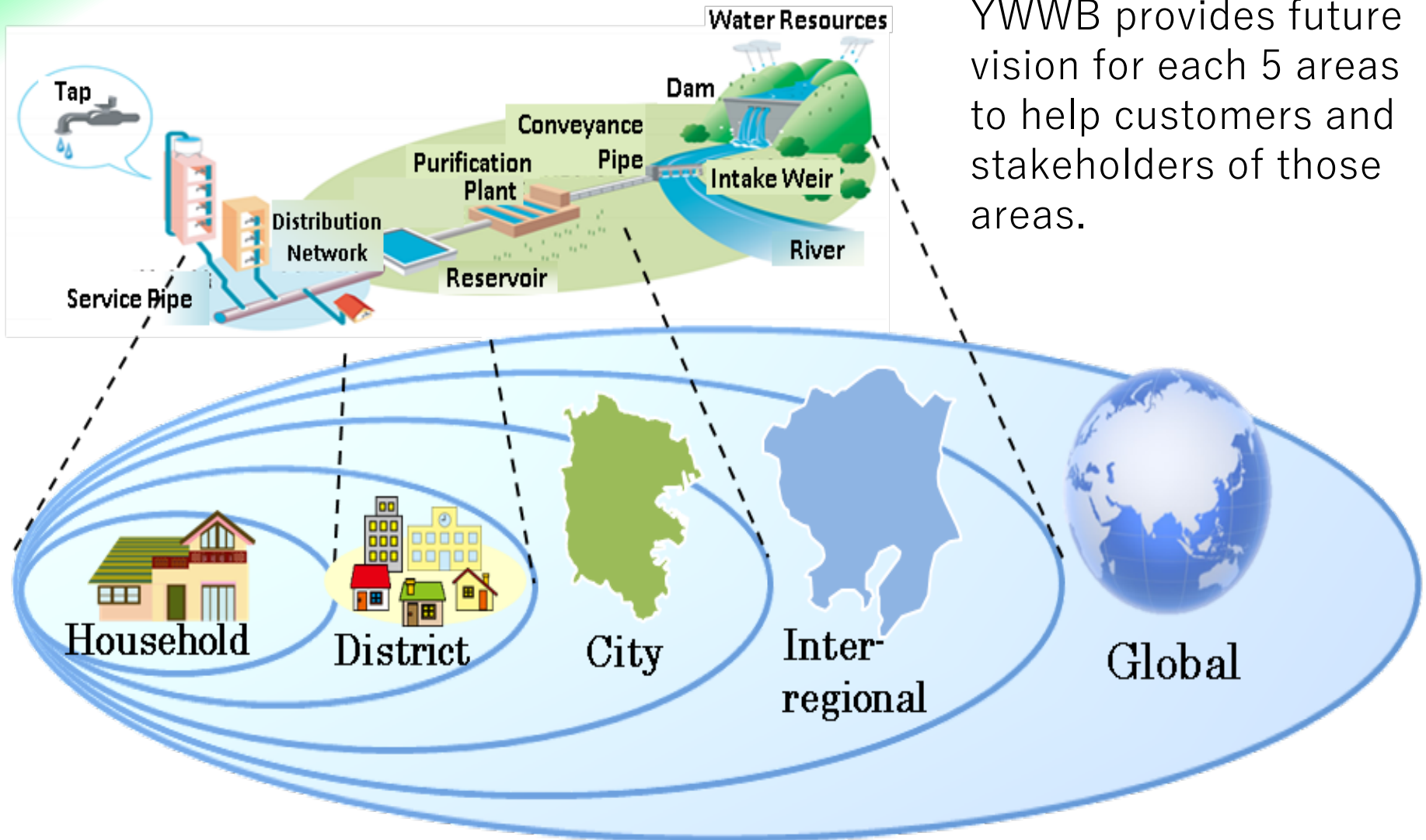
2,400km

Now, we are facing the time limit to replace pipelines which are installed during this period



Year of Pipeline Installation

Our Future Vision Ver.2016

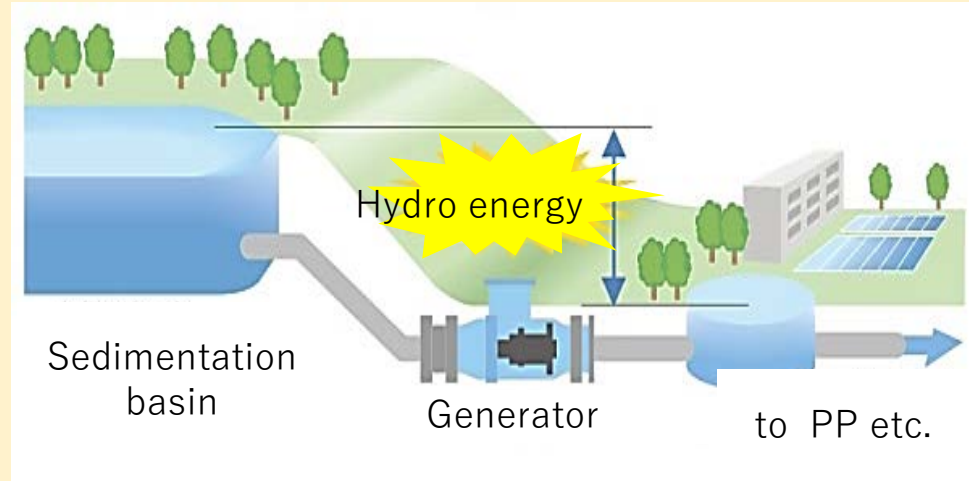


Environmentally Friendly Water Supply

Environmental load shall be reduced in the process of treatment from water source to water tap, that **needs a lot of electric power.**

① Energy Efficient waterworks

- Extending gravity flow systems
- Promoting renewable energy application



② Maintenance of water sources and environmental protection by public and private partnership

- Public relation by using official bottled water “Hamakko-doshi The Water”
- Maintenance water source forest with citizens volunteer and so on.



“Hamakko-doshi The Water”

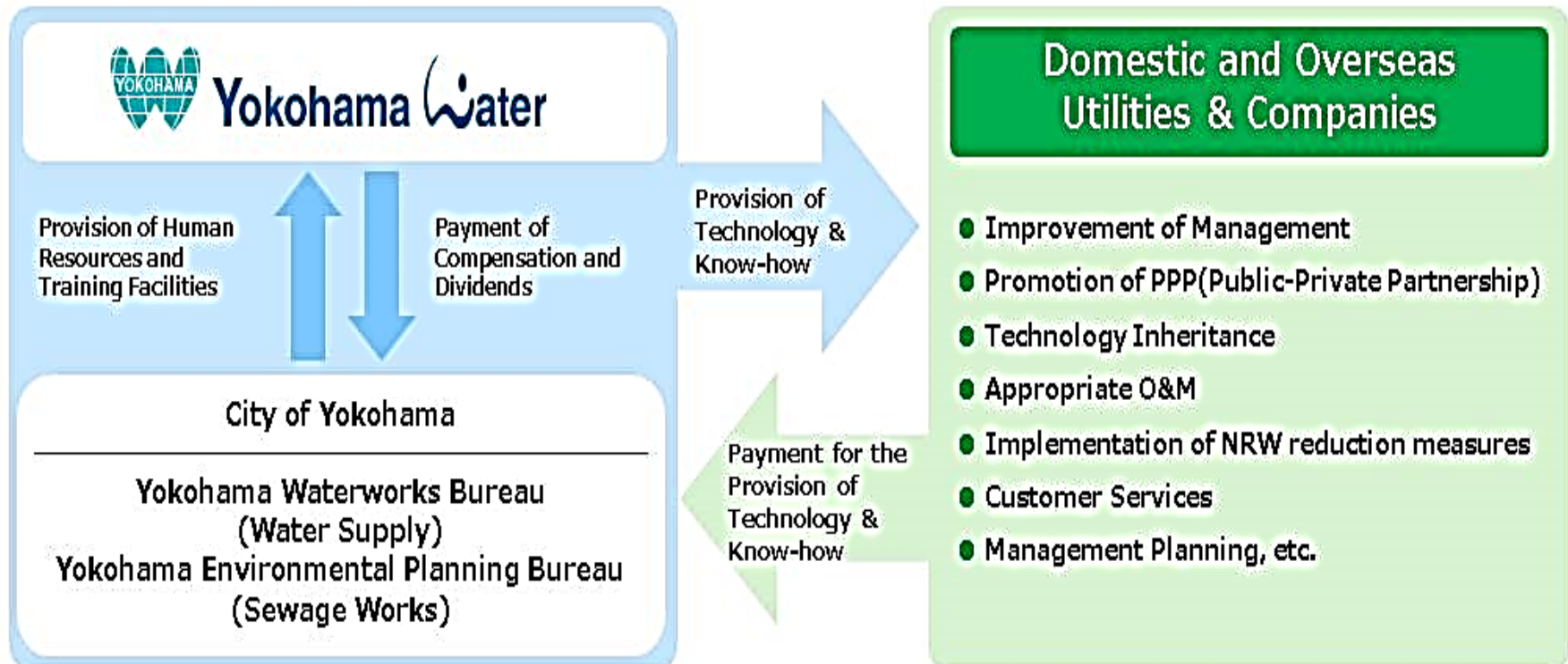


Volunteer activity



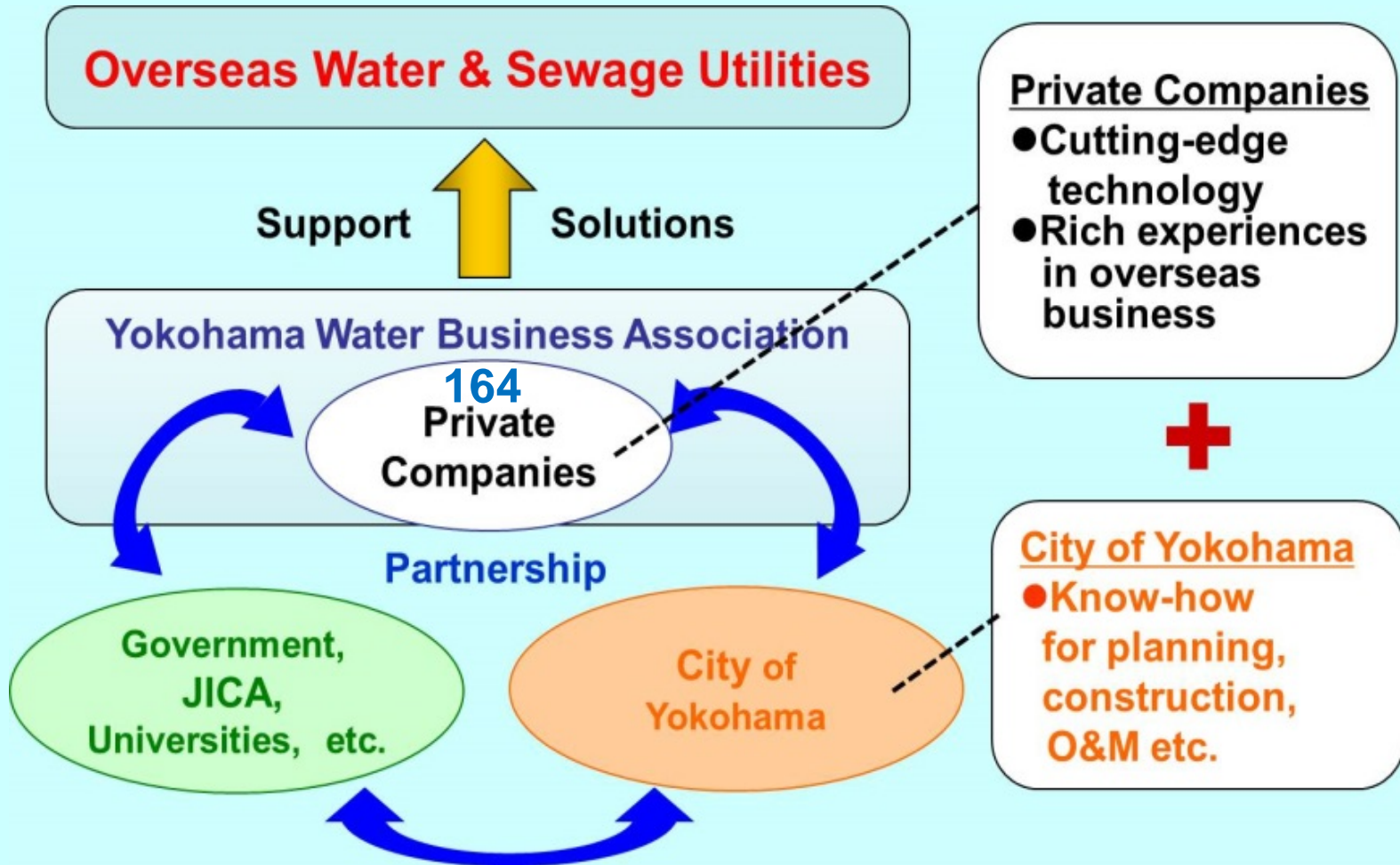
Yokohama Water

- Established by YWWB on July 1, 2010
- Capital: 100 million yen (wholly funded by YWWB)
- Making use of YWWB's technology and know-how accumulated for 129 years
- Contribution to water supply and sewerage utilities in home and overseas



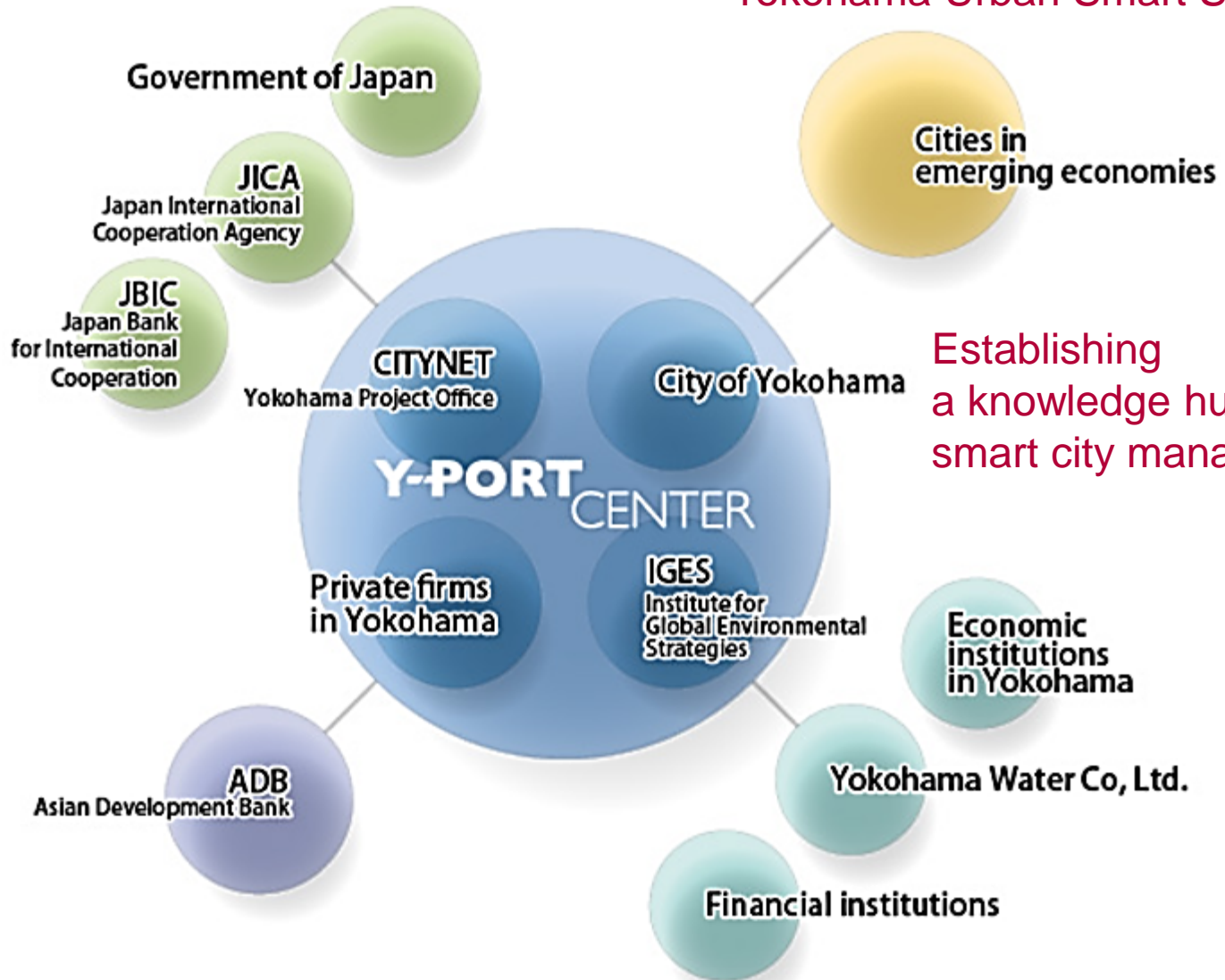
Yokohama Water Business Association

Public-Private Alliance Offering Solutions to Water-related Issues



Y-PORT Center

Yokohama Urban Smart Solution



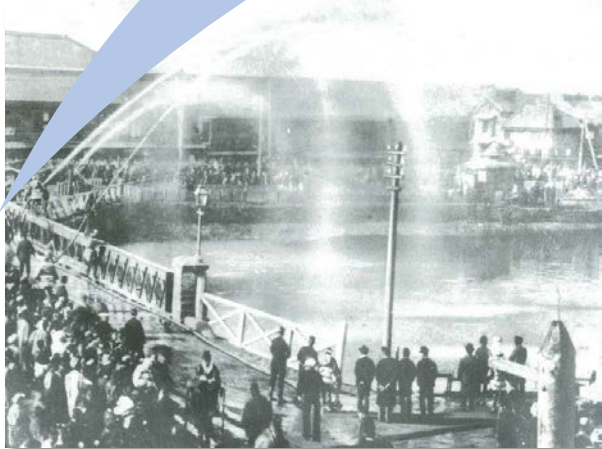
3-9

Challenges & Future Vision

We can share future vision of water

130th Anniversary 2017

Foundation
1887



Thank you for your attention

